



# USING DATABASES IN TOBACCO RESEARCH

Robert McMillen

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# ■ Welcome to Data Camp

## ■ So what?

- Surveillance
- Evaluation
- Inform Policy Decisions

## ■ Data Sources

- Surveys
- Administrative Records
- Social Media



# SURVEY DATA

- Social Climate Survey of Tobacco Control
- Tobacco Use Supplement to the Current Population Survey
- Behavioral Risk Factor Surveillance System
- National Health Interview Survey
- National Health and Nutrition Examination Survey
- Adult Tobacco Survey
- The Population Assessment of Tobacco and Health (PATH)
- Youth Tobacco Survey
- Youth Risk Behavior Survey



# ADMINISTRATIVE RECORDS

- Per Capita Sales
- Sales Tax Revenue
- Hospital Admission Data
- Medicaid Expenditures
- Gaming Revenue and Employment Data
- State Funding for Tobacco Control
- Legislation Tracking



# SOCIAL MEDIA

- Publicly Visible Platforms
  - Twitter
  - YouTube



# SURVEY DATA



# **SOCIAL CLIMATE SURVEY OF TOBACCO CONTROL**

**SOCIALCLIMATE.ORG**

- Supported by the AAP, FAMRI, & The Truth Initiative
- Dual Frame Survey
  - Annual, cross-sectional survey, 2000-2015
  - U.S. Adults, 18+
  - RDD – Mobile and Landline Telephones
- Social Climate
  - Tobacco Use
  - Rules and Practices
  - Knowledge
  - Attitudes
  - Tobacco Counseling



# SOCIAL CLIMATE SURVEY OF TOBACCO CONTROL

Association between clean indoor air laws and voluntary smokefree rules in homes and cars

Kai-Wen Cheng,<sup>1</sup> Cassandra A Okechukwu,<sup>2</sup> Robert McMillen,<sup>3</sup> Stanton A Glantz<sup>4</sup>

Public support for raising the age of sale for tobacco to 21 in the United States

Jonathan G Winickoff,<sup>1,2</sup> Robert McMillen,<sup>1,3</sup> Susanne Tanski,<sup>4</sup> Karen Wilson,<sup>5</sup>  
Mark Gottlieb,<sup>6</sup> Robert Crane<sup>7</sup>

**Trends in Electronic Cigarette Use Among U.S. Adults: Use is Increasing in Both Smokers and Nonsmokers**

Robert C. McMillen PhD<sup>1</sup>, Mark A. Gottlieb JD<sup>2</sup>, Regina M. Whitmore Shaefer MPH<sup>3</sup>, Jonathan P. Winickoff MD, MPH<sup>4</sup>, Jonathan D. Klein, MD, MPH<sup>3</sup>





# MISSISSIPPI SCS & POLICY

## Raising <sup>the</sup> age of sale for tobacco

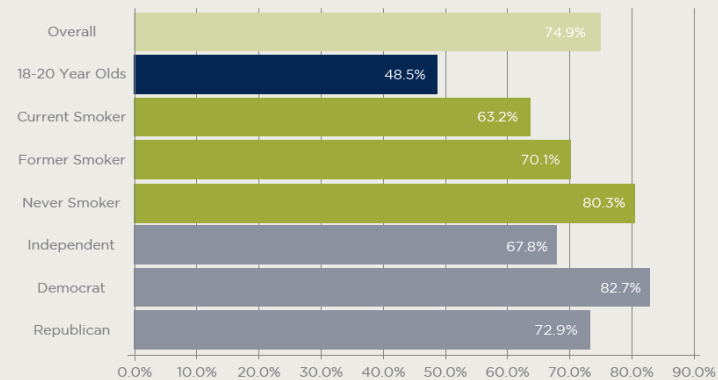
75% of Mississippi  
Adults  
support this policy

to **21**  
in Mississippi



Cities and states across the United States have raised or are considering raising the age of purchase for tobacco to 21.

### Public Support among MS Adults {for Raising Age of Purchase to 21}



This study demonstrates broad public support for raising the sales age of tobacco to 21 among Mississippi adults.



This policy decreases teen smoking by making it harder to get tobacco products for minors.



Raising the age of purchase is effective because it puts legal purchasers outside high school students' social networks.

2017 • mississippi tobacco data



# TOBACCO USE SUPPLEMENT

CURRENT POPULATION SURVEY

- Supported by the NCI
  - [cancercontrol.cancer.gov/brp/tcrb/tus-cps](http://cancercontrol.cancer.gov/brp/tcrb/tus-cps)
- National & State-Level Estimates
- Household Survey
- Core Questions +
- Years
  - 1992/93, 1995/96 1998/99, 2003, 2006/07, 2010/11, and 2014/15



## 2010-11 TUS-CPS Data, Table 2: Home & Work Environments in Which Smoking is Not Allowed

Table 2. 2010-11 Tobacco Use Supplement to the Current Population Survey (TUS-CPS):

Home and Work Environments in Which Smoking is Not Allowed - Percentage Estimates (95% Confidence Intervals) of the US Household Population, 18 Years and Older:

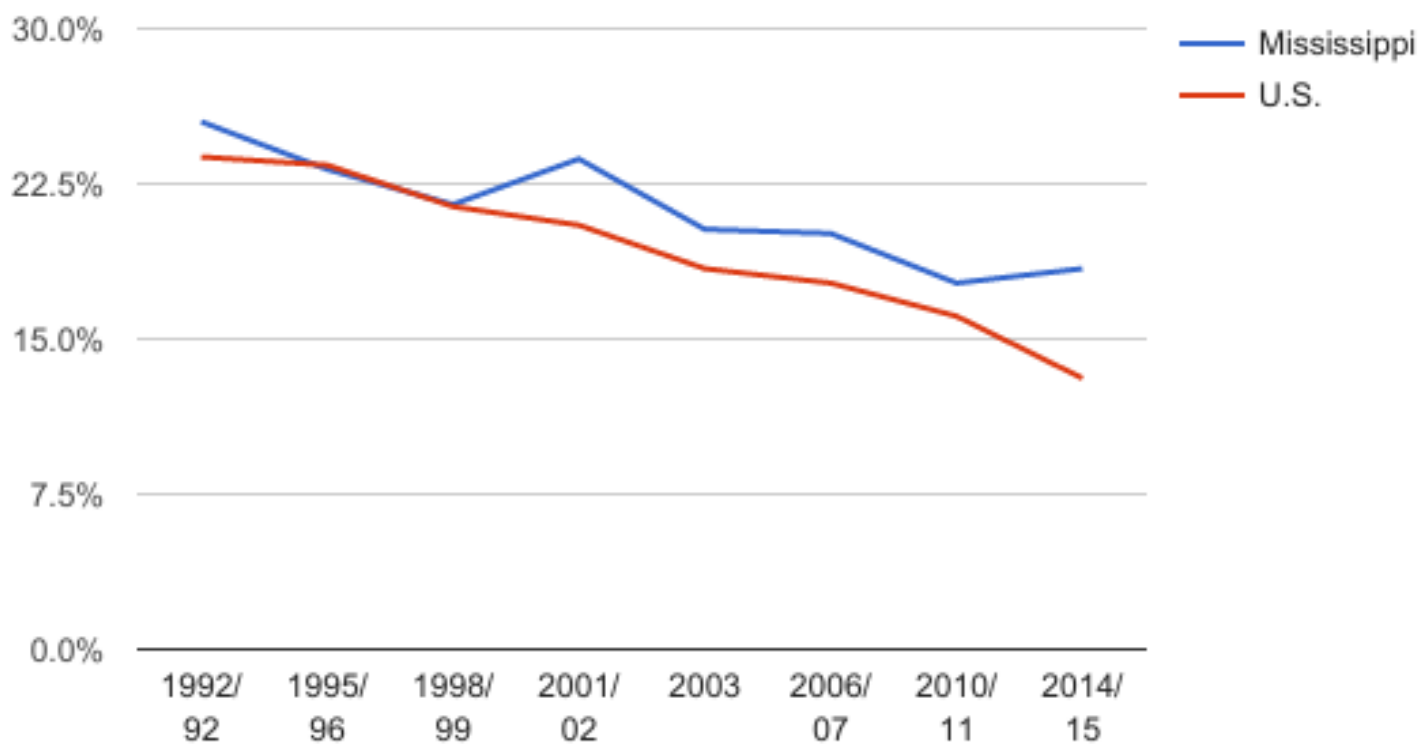
	<b>Smoking not allowed at home %* (CI)</b>	<b>Population size (denominator)</b>	<b>Sample size (denominator)</b>	<b>Smoking not allowed at work %† (CI)</b>	<b>Population size (denominator)</b>	<b>Sample size (denominator)</b>
<b>Total</b>	83.9 (83.6-84.3)	224,518,619	167,281	82.2 (81.8-82.6)	100,218,641	74,139
<b>Sex:</b>						
<b>Male</b>	82.8 (82.4-83.3)	108,098,930	73,715	79.3 (78.7-79.9)	47,369,715	31,654
<b>Female</b>	85 (84.7-85.3)	116,419,690	93,566	84.8 (84.3-85.2)	52,848,925	42,485
<b>Region:</b>						
<b>Northeast</b>	82.9 (82.1-83.6)	41,341,659	33,781	84.8 (83.9-85.7)	19,123,412	15,375
<b>Midwest</b>	79.1 (78.5-79.8)	48,749,962	40,601	85.4 (84.7-86.1)	23,514,928	19,542
<b>South</b>	82.9 (82.3-83.5)	82,386,926	53,050	79.1 (78.3-79.8)	35,613,754	22,533
<b>West</b>	91 (90.5-91.4)	52,040,072	39,849	81.5 (80.6-82.3)	21,966,547	16,689



# TOBACCO USE SUPPLEMENT

CURRENT POPULATION SURVEY

Current Cigarette Smoking - TUS



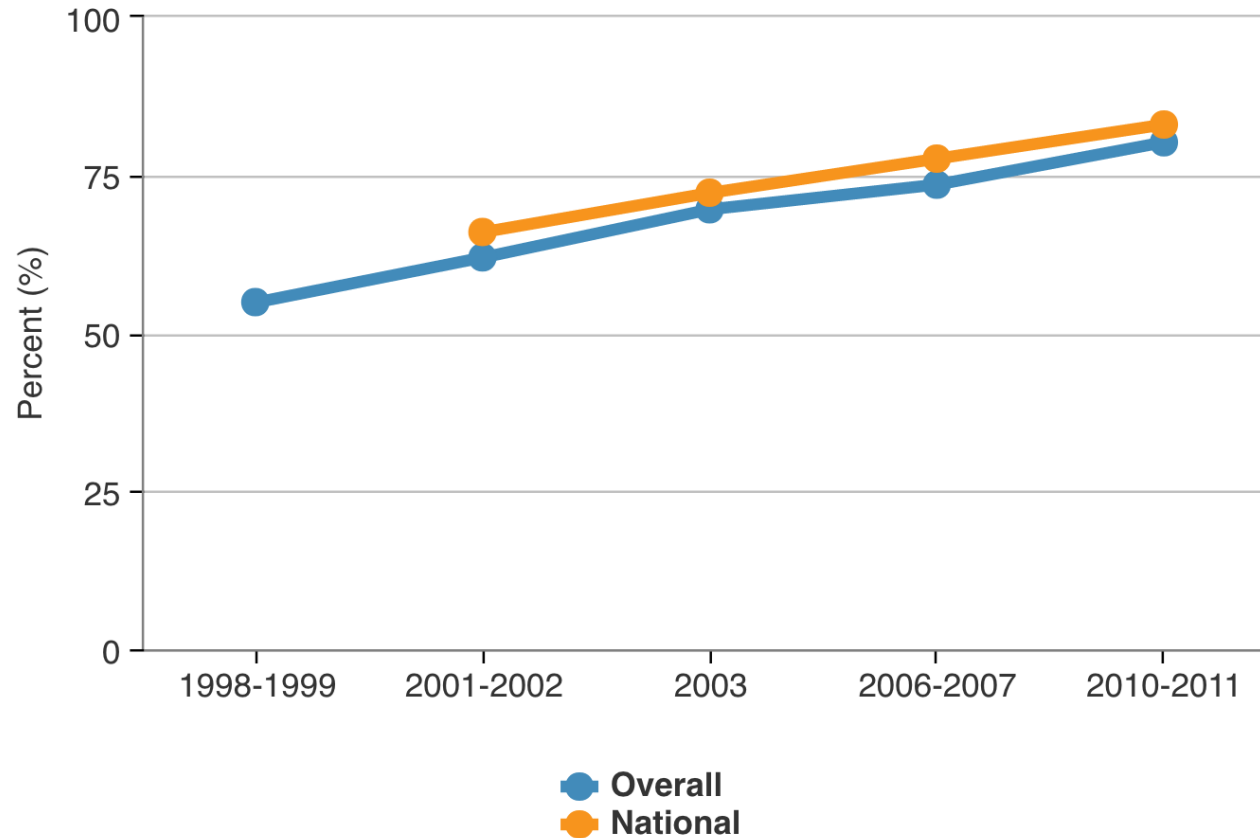


Mississippi

2010-2011  Other additional data



Percent of Households Protected by Smokefree Rules



**Note:** The above estimate is a percentage of households with smokefree rules. This estimate is based on agreement of self-respondents aged 15 years and older within each household.

**Source:** [Tobacco Use Supplement to the Current Population Survey \(TUS-CPS\)](#)



# BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

[WWW.CDC.GOV/BRFSS](http://WWW.CDC.GOV/BRFSS)

- Established in 1984 with 15 states, BRFSS now collects data in all 50 states as well as the District of Columbia and three U.S. territories.
- BRFSS completes more than 400,000 adult interviews each year.
- Sample obtained using RDD methods.
  - Mobile Phone surveys were included beginning in 2011.



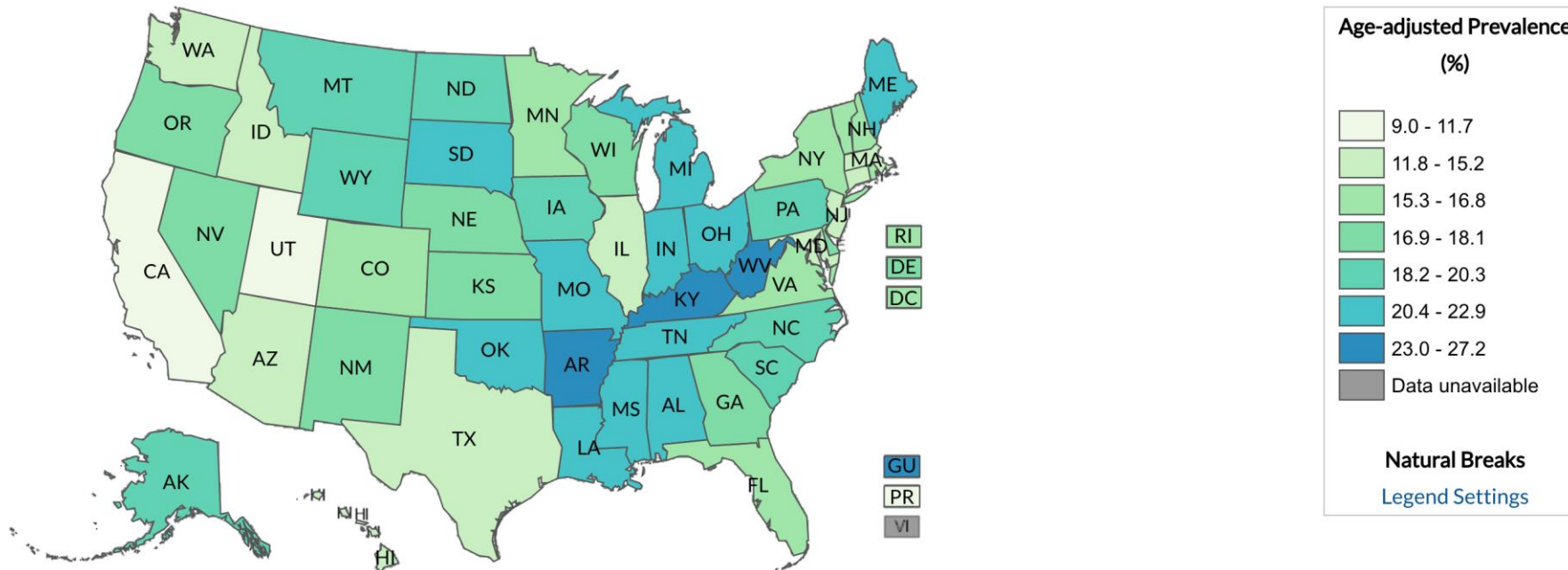
# BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

2015

Adults who are current smokers (variable calculated from one or more BRFSS questions) (Age-adjusted Prevalence)

View by: Overall

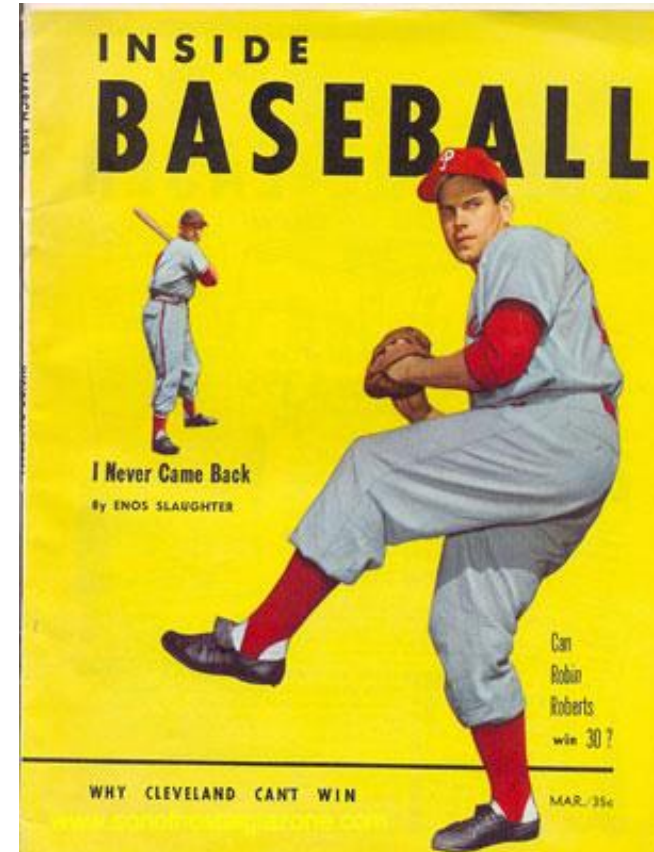
Response: Yes



PR

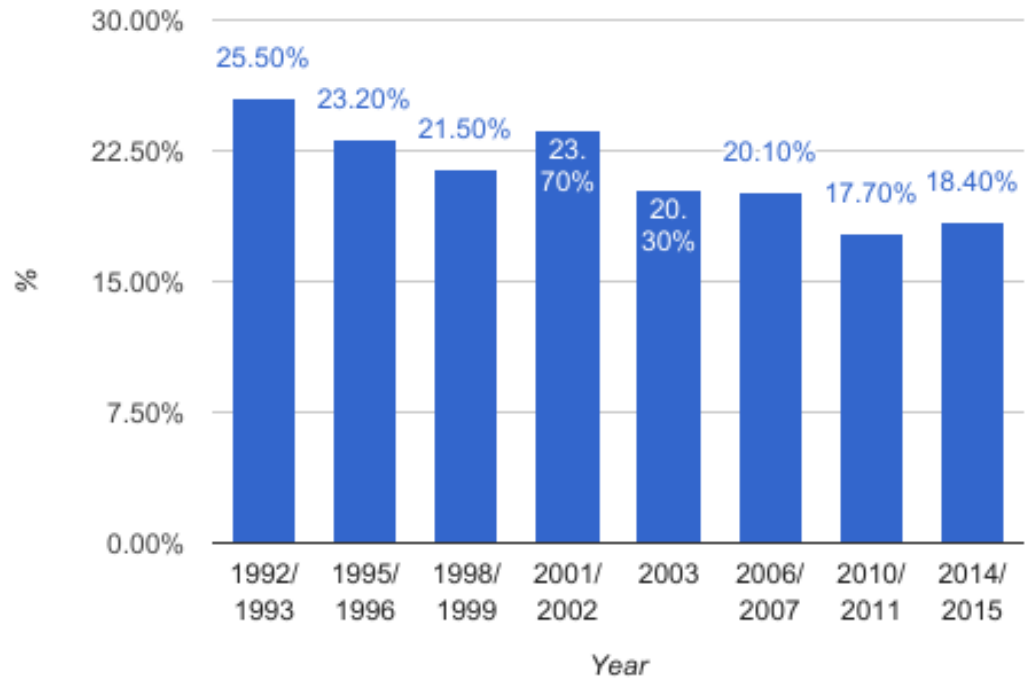


# TUS & BRESS ESTIMATES FOR TRENDS IN CURRENT CIGARETTE SMOKING





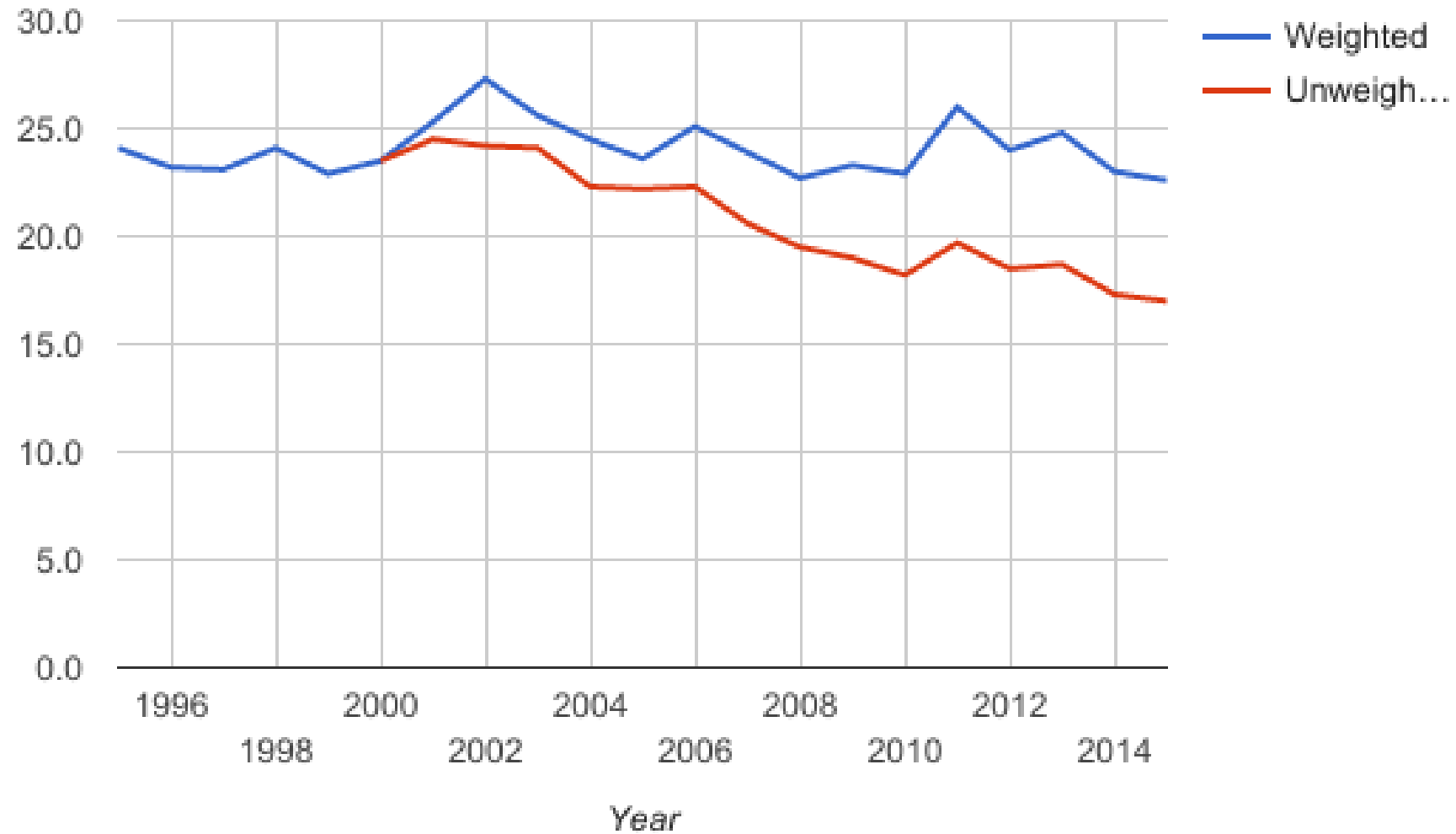
**Mississippi - Current Smoking from TUS**



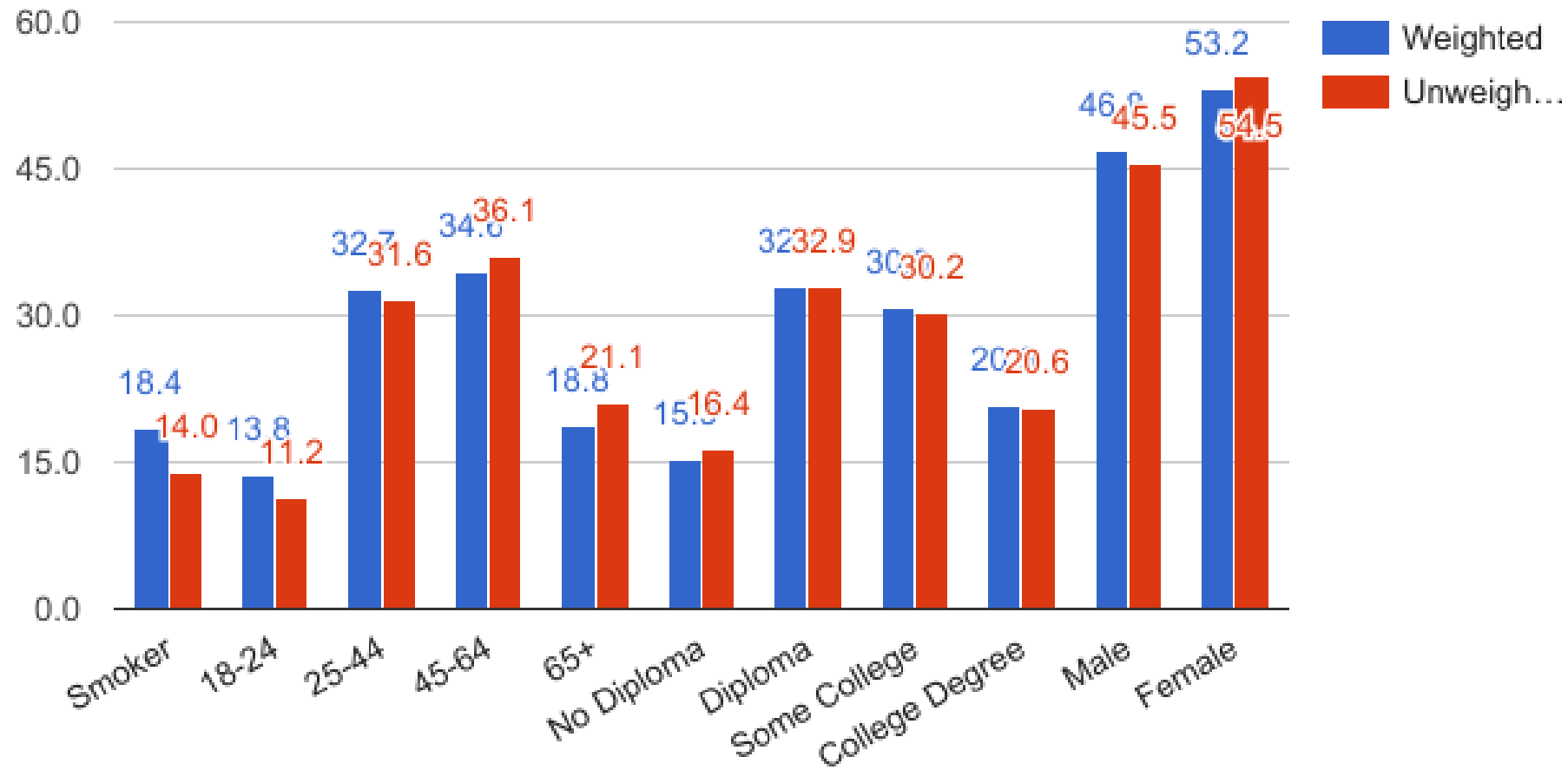
**Mississippi - Current Smoking from BRFSS**



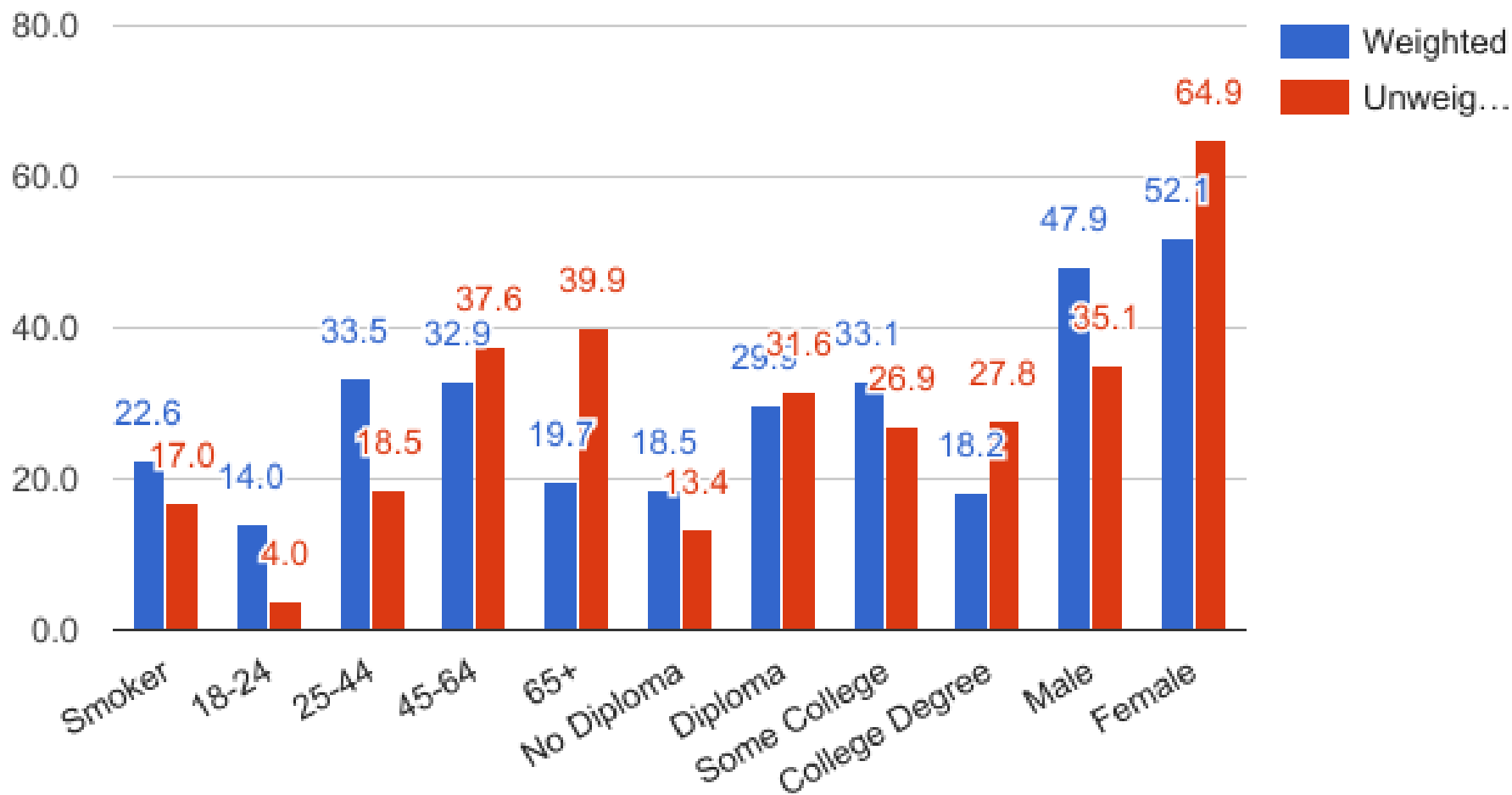
## Adult Smoking - MS BRFSS



## Mississippi TUS, 2014/15 - Sample Characteristics



## Mississippi BRFSS, 2015 - Sample Characteristics



# NATIONAL HEALTH INTERVIEW SURVEY

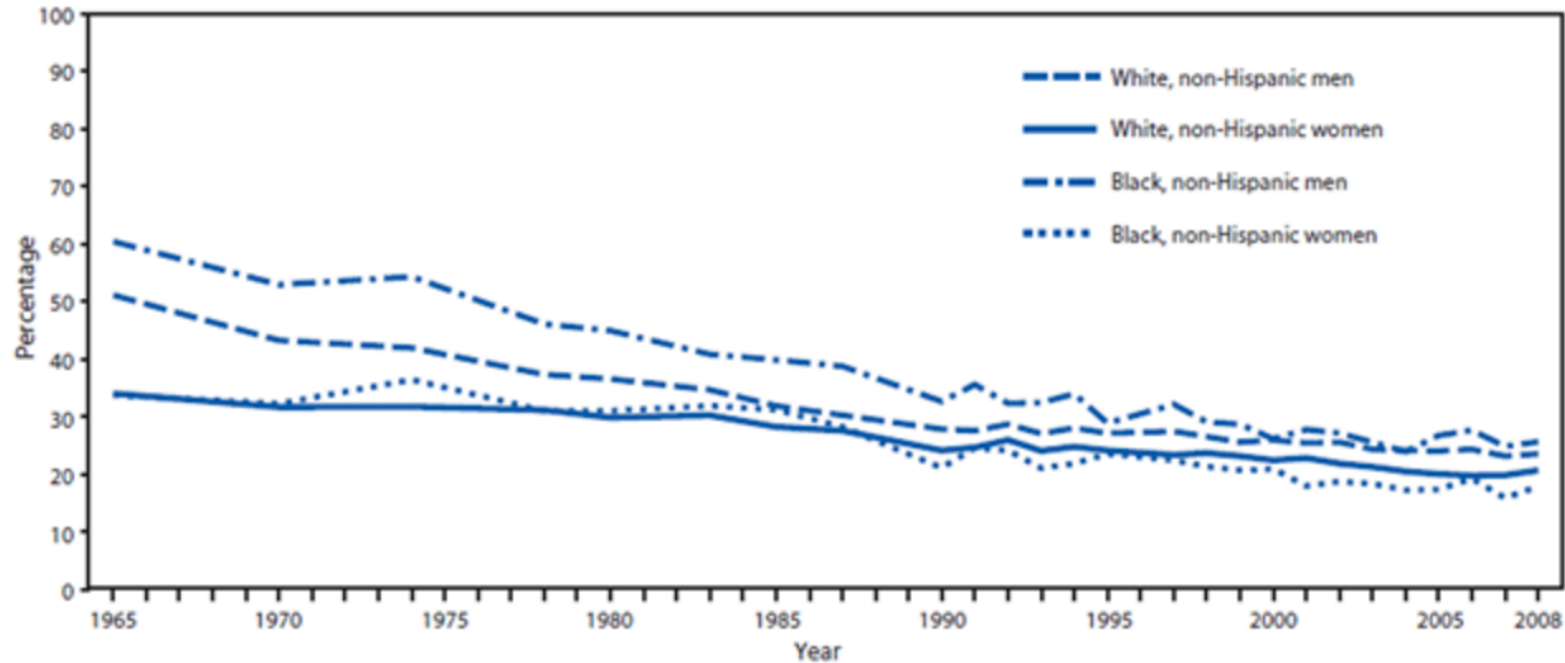
[WWW.CDC.GOV/NCHS/NHIS](http://WWW.CDC.GOV/NCHS/NHIS)

- Initiated in July 1957
- Administered by the CDC's National Center for Health Statistics (NCHS)
- Cross-sectional household interview survey
  - Multistage area probability design
  - From each family in the NHIS, one sample adult and one sample child (if any children are present)



# NATIONAL HEALTH INTERVIEW SURVEY

**FIGURE. Percentage of adults aged  $\geq 18$  years who were current smokers,\* by sex and race/ethnicity --- National Health Interview Survey (NHIS), United States, 1965--2008<sup>†</sup>**

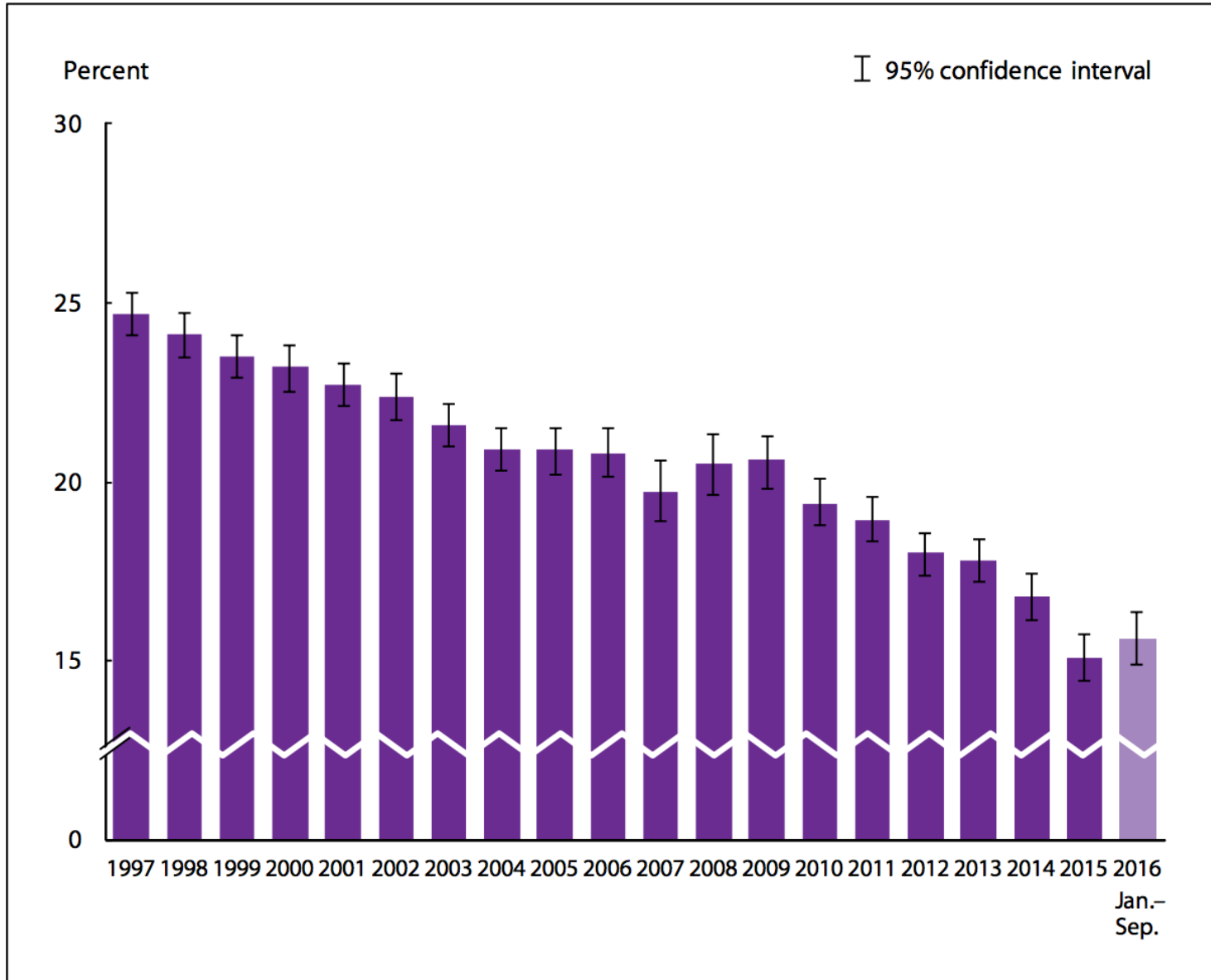


\* For NHIS survey years 1965--1991, current smokers included adults who reported that they had smoked  $\geq 100$  cigarettes in their lifetime and current smoking. Since 1992, current smokers included adults who reported smoking  $\geq 100$  cigarettes during their lifetime and specified that they currently smoked every day or on some days.



## Current smoking

Figure 8.1. Prevalence of current cigarette smoking among adults aged 18 and over: United States, 1997–September 2016



# NATIONAL HEALTH INTERVIEW SURVEY



# NHANES

[WWW.CDC.GOV/NCHS/NHANES](http://WWW.CDC.GOV/NCHS/NHANES)

- Most recent NHANES began in 1999
- Annually, 7,000 individuals, of all ages, are interviewed in their homes
- 5,000 complete the health examination component of the survey

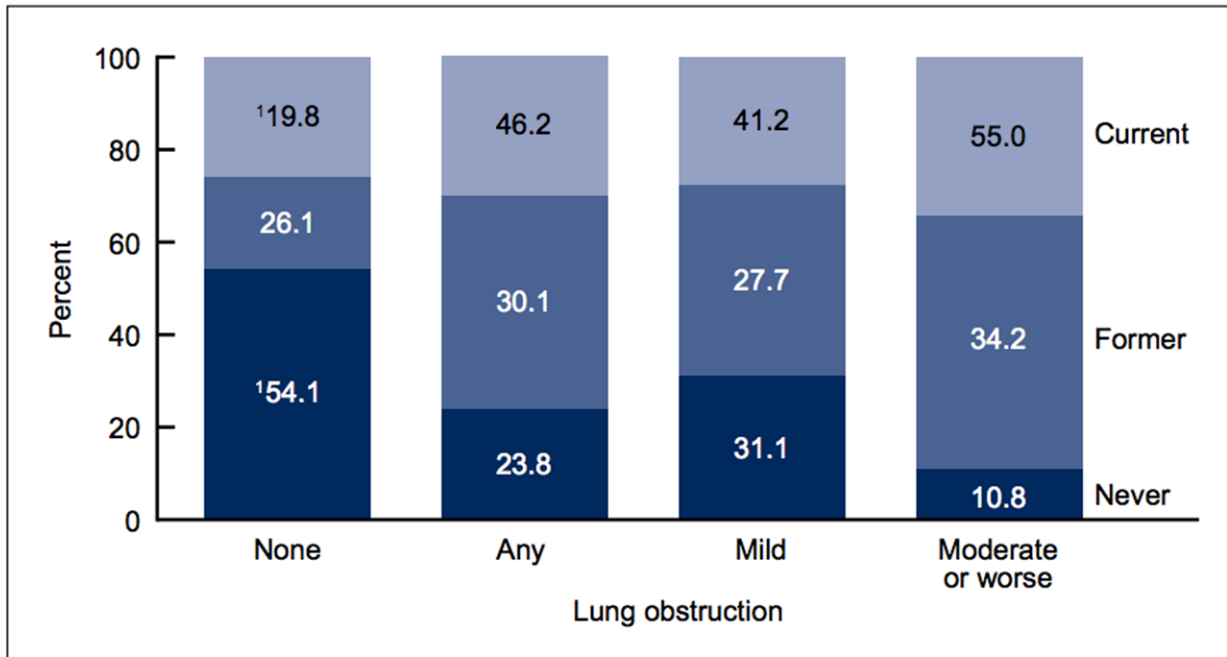




## Cigarette Smoking and Lung Obstruction Among Adults Aged 40–79: United States, 2007–2012

Ryne Paulose-Ram, Ph.D., M.A.; Timothy Tilert, B.S.; Charles F. Dillon, M.D., Ph.D.;  
and Debra J. Brody, M.P.H.

Figure 1. Cigarette smoking among adults aged 40–79 with and without lung obstruction: United States, 2007–2012



<sup>1</sup>Significantly different from adults with any lung obstruction for same smoking status group.

NOTES: Significance testing only conducted between adults with any lung obstruction and those without lung obstruction.

Access data table for Figure 1 at: [http://www.cdc.gov/nchs/data/databriefs/db181\\_table.pdf#1](http://www.cdc.gov/nchs/data/databriefs/db181_table.pdf#1).

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey, 2007–2012.



# Tobacco-Smoke Exposure in Children Who Live in Multiunit Housing

**AUTHORS:** Karen M. Wilson, MD, MPH,<sup>a,b</sup> Jonathan D. Klein, MD, MPH,<sup>a,b</sup> Aaron K. Blumkin, MS,<sup>a</sup> Mark Gottlieb, JD,<sup>b,c</sup> and Jonathan P. Winickoff, MD, MPH<sup>b,d</sup>

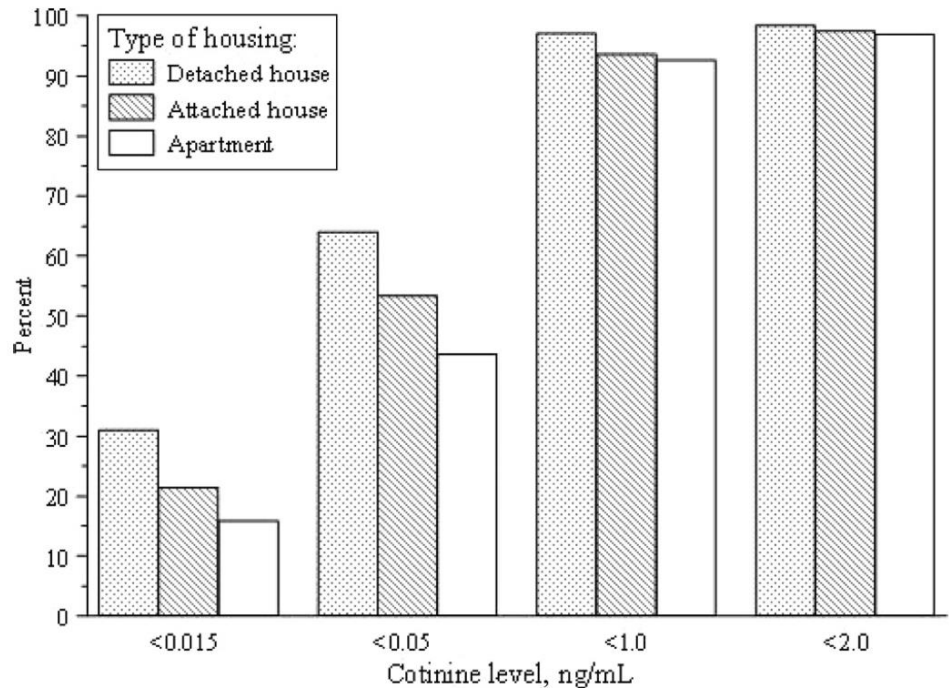
<sup>a</sup>Department of Pediatrics, University of Rochester, Rochester, New York; <sup>b</sup>Julius B. Richmond Center of Excellence, American Academy of Pediatrics, Elk Grove Village, Illinois; <sup>c</sup>Public Health Advocacy Institute, Northeastern University School of Law, Boston, Massachusetts; and <sup>d</sup>Department of Pediatrics, Massachusetts General Hospital for Children, Harvard Medical School, Boston, Massachusetts

**KEY WORDS**  
secondhand smoke, passive smoking, environmental tobacco smoke, multiunit housing, apartment

**WHAT'S KNOWN ON THIS SUBJECT:** Exposure to secondhand tobacco smoke is an important cause of morbidity and mortality among children, even at low levels of exposure. In a recent national sample, 54% of children who did not live with a smoker showed measureable amounts of cotinine.

**WHAT THIS STUDY ADDS:** Children who live in homes in which no one smokes inside have a 45% increase in cotinine levels if they live in apartments compared with detached homes. Multiunit housing may be a significant source of secondhand tobacco-smoke exposure for children, at levels associated with morbidity.

# NHANES



**FIGURE 1**  
Percentage of children who are unexposed by housing type and cotinine cutoff. The y-axis shows the proportion of children who are unexposed at 3 different cotinine cutoff levels. These levels, displayed on the x-axis, are <0.015, <0.05, <1, and <2 ng/mL cotinine. The types of bars for each of the different housing types: detached house, attached house, and apartment.

# **NATIONAL ADULT TOBACCO SURVEY**

**[WWW.CDC.GOV/TOBACCO/DATA\\_STATISTICS/SURVEYS/NATS](http://WWW.CDC.GOV/TOBACCO/DATA_STATISTICS/SURVEYS/NATS)**

- NATS establishes a comprehensive framework for evaluating both the national and state-specific tobacco control programs.
- Administered 2009/10, 2012/13, 2013/14
- Stratified, national, landline, and cell phone survey of non-institutionalized adults aged 18 years and older residing in the 50 states or D.C.



# NATIONAL ADULT TOBACCO SURVEY

TABLE 1. Percentage of persons aged  $\geq 18$  years who reported tobacco product use “every day” or “some days” and met established thresholds, by tobacco product and selected characteristics — National Adult Tobacco Survey, United States, 2013–2014

[Return](#) [Top](#)

Characteristic	Tobacco product % (95% CI)							
	Any tobacco product*	Any combustible tobacco product†	Cigarettes <sup>§</sup>	Cigars/Cigarillos/ Filtered little cigars <sup>¶</sup>	Regular pipe <sup>**</sup>	Water pipe/ Hookah <sup>††</sup>	E-cigarettes <sup>§§</sup>	Smokeless tobacco <sup>¶¶</sup>
Overall	21.3 (20.8–21.7)	18.4 (18.0–18.8)	17.0 (16.6–17.4)	1.8 (1.6–1.9)	0.3 (0.2–0.4)	0.6 (0.5–0.7)	3.3 (3.1–3.5)	2.5 (2.3–2.6)
Sex								
Male	26.3 (25.6–27.0)	21.5 (20.8–22.1)	19.3 (18.6–19.9)	2.8 (2.5–3.1)	0.6 (0.5–0.7)	0.8 (0.6–0.9)	4.0 (3.6–4.3)	4.8 (4.5–5.2)
Female	16.7 (16.2–17.3)	15.7 (15.1–16.2)	15.1 (14.5–15.6)	0.8(0.6–0.9)	—***	0.4 (0.3–0.5)	2.8 (2.6–3.0)	0.3 (0.2–0.3)



# THE POPULATION ASSESSMENT OF TOBACCO AND HEALTH (PATH)

[PATHSTUDYINFO.NIH.GOV](http://PATHSTUDYINFO.NIH.GOV)

- Nationally representative, longitudinal cohort study
- Tracks approximately 59,000 tobacco product users, never users, and former users including 16,100 youth aged 12-17 and 42,700 adults aged 18 and older
- Computer-assisted interviews to collect information from adults, youth, and parents of youth;
  - Biospecimens (i.e., buccal cell, urine, blood) are collected from consenting adults.
- Participants are assessed annually for at least three years



# PATH



## The NEW ENGLAND JOURNAL of MEDICINE

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### SPECIAL ARTICLE

## Tobacco-Product Use by Adults and Youths in the United States in 2013 and 2014

Karin A. Kasza, M.A., Bridget K. Ambrose, Ph.D., Kevin P. Conway, Ph.D., Nicolette Borek, Ph.D., Kristie Taylor, Ph.D., Maciej L. Goniewicz, Pharm.D., Ph.D., K. Michael Cummings, Ph.D., M.P.H., Eva Sharma, Ph.D., Jennifer L. Pearson, Ph.D., M.P.H., Victoria R. Green, B.A., Annette R. Kaufman, Ph.D., M.P.H., Maansi Bansal-Travers, Ph.D., Mark J. Travers, Ph.D., Jonathan Kwan, M.S., Cindy Tworek, Ph.D., M.P.H., Yu-Ching Cheng, Ph.D., Ling Yang, M.D., Ph.D., Nikolas Pharris-Ciurej, Ph.D., Dana M. van Bommel, Ph.D., M.P.H., Cathy L. Backinger, Ph.D., M.P.H., Wilson M. Compton, M.D., M.P.E., and Andrew J. Hyland, Ph.D.

N Engl J Med 2017; 376:342-353 | [January 26, 2017](#) | DOI: 10.1056/NEJMsa1607538

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### Product preferences among light and regular adolescent e-cigarette users: Results from the first wave of the PATH Study

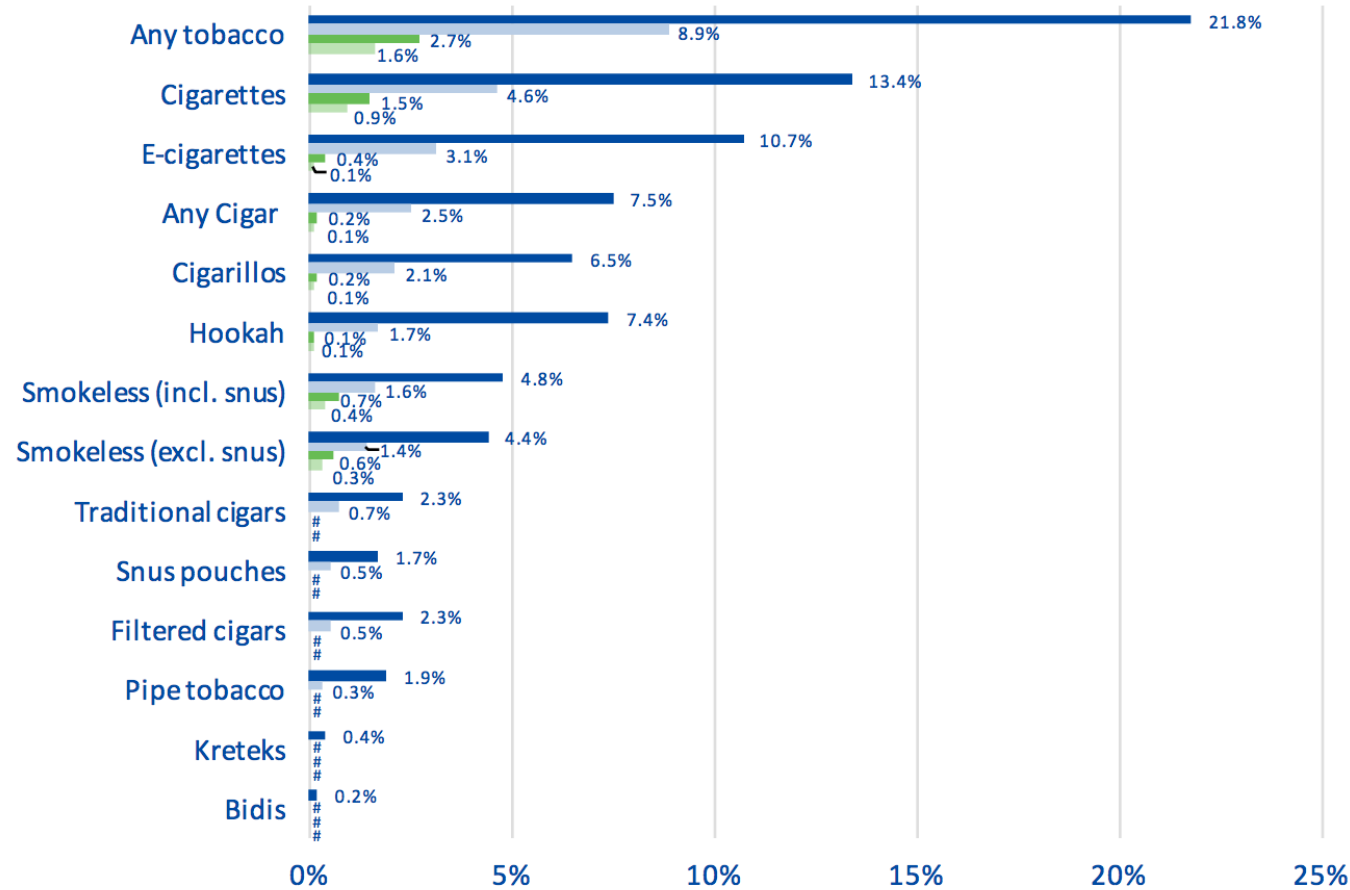
[Robert C. McMillen, PhD](#), Mississippi State University, Starkville, MS, Susanne Tanski, MD, MPH, The Geisel School of Medicine at Dartmouth, Lebanon, NH, Karen Wilson, MD, MPH, Icahn School of Medicine at Mount Sinai, New York, NY, Jonathan D. Klein, MD, MPH, University of Rochester, Chicago, IL and Jonathan P. Winickoff, MD, MPH, Harvard Medical School, Boston, MA





# The PATH Study Wave 1 – Youth Reporting

## Percent of Youth Reporting Ever, Past 30-Day, Frequent,\* and Daily Use, by Product



\* Frequent use is defined as: use of a product on 20 or more of the past 30 days; for hookah, frequent use is defined as: use at least 20 times per month on average; frequent use of “any tobacco” product reflects only those who used a particular product on 20 or more of the past 30 days; daily use of “any tobacco” product reflects only those who used a particular product daily.

# Estimate suppressed because it is statistically unreliable; it is based on a sample size of less than 50, or the coefficient of variation of the estimate is larger than 30 percent.

# YOUTH TOBACCO SURVEY

[WWW.CDC.GOV/TOBACCO/DATA\\_STATISTICS/SURVEYS/NYTS](http://WWW.CDC.GOV/TOBACCO/DATA_STATISTICS/SURVEYS/NYTS)

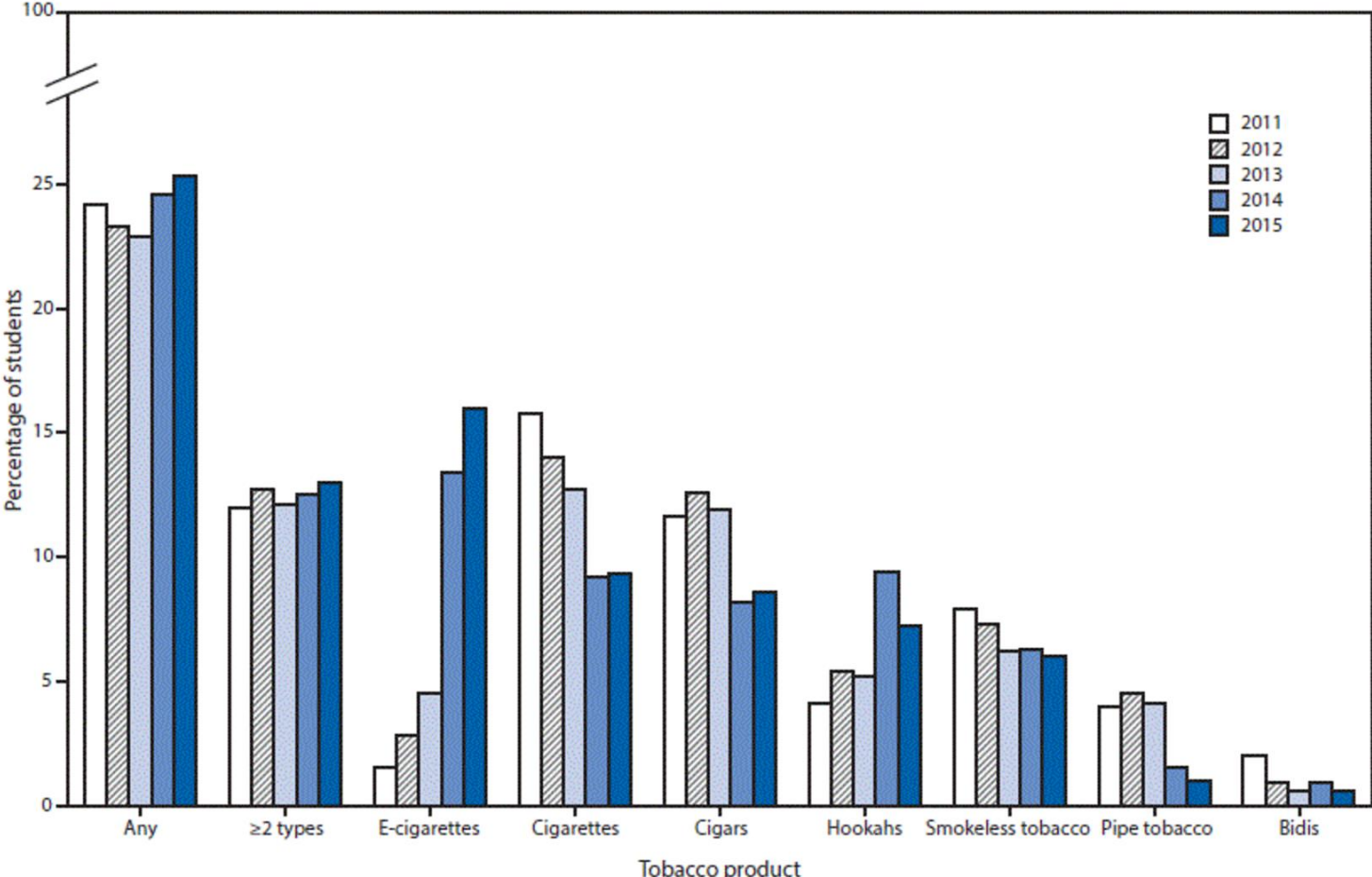
- Stratified, three-stage cluster sample design to produce a nationally representative sample of middle school and high school students in the United States
  - 1999, 2000, 2002, 2004, 2006, 2009, 2011, 2012, 2013, 2014, and 2015
- **Assesses**
  - Tobacco-related beliefs
  - Attitudes
  - Behaviors
  - Exposure to pro- and anti-tobacco influences
- School-based self-administered survey
- Some states also administer the YTS





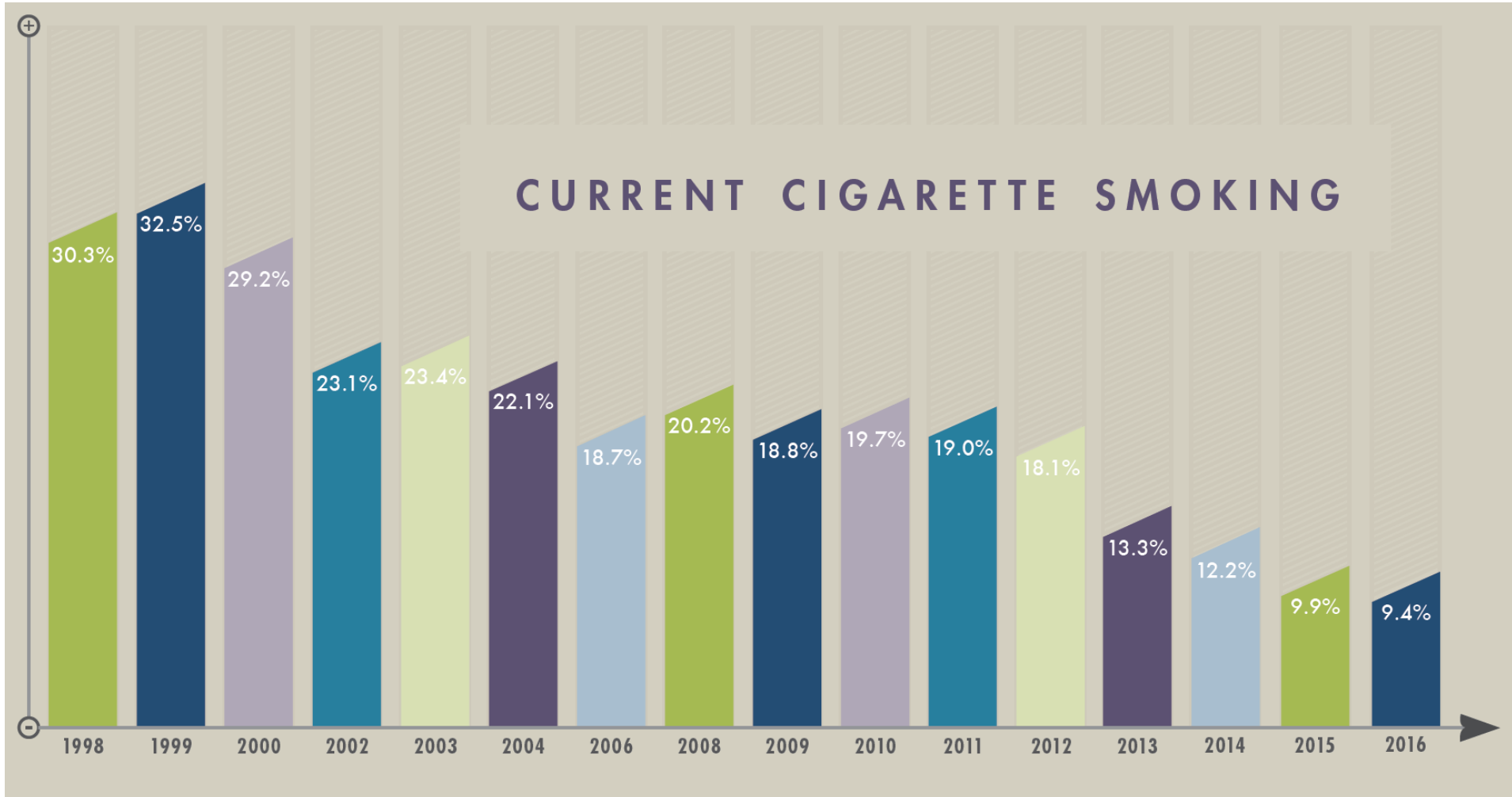
# YOUTH TOBACCO SURVEY

FIGURE 1. Estimated percentage of high school students who currently use any tobacco products,\*  $\geq 2$  tobacco products,<sup>†</sup> and select tobacco products<sup>§</sup> – National Youth Tobacco Survey 2011–2015



# MISSISSIPPI YOUTH TOBACCO SURVEY

## CURRENT CIGARETTE SMOKING



# YOUTH RISK BEHAVIOR SURVEY

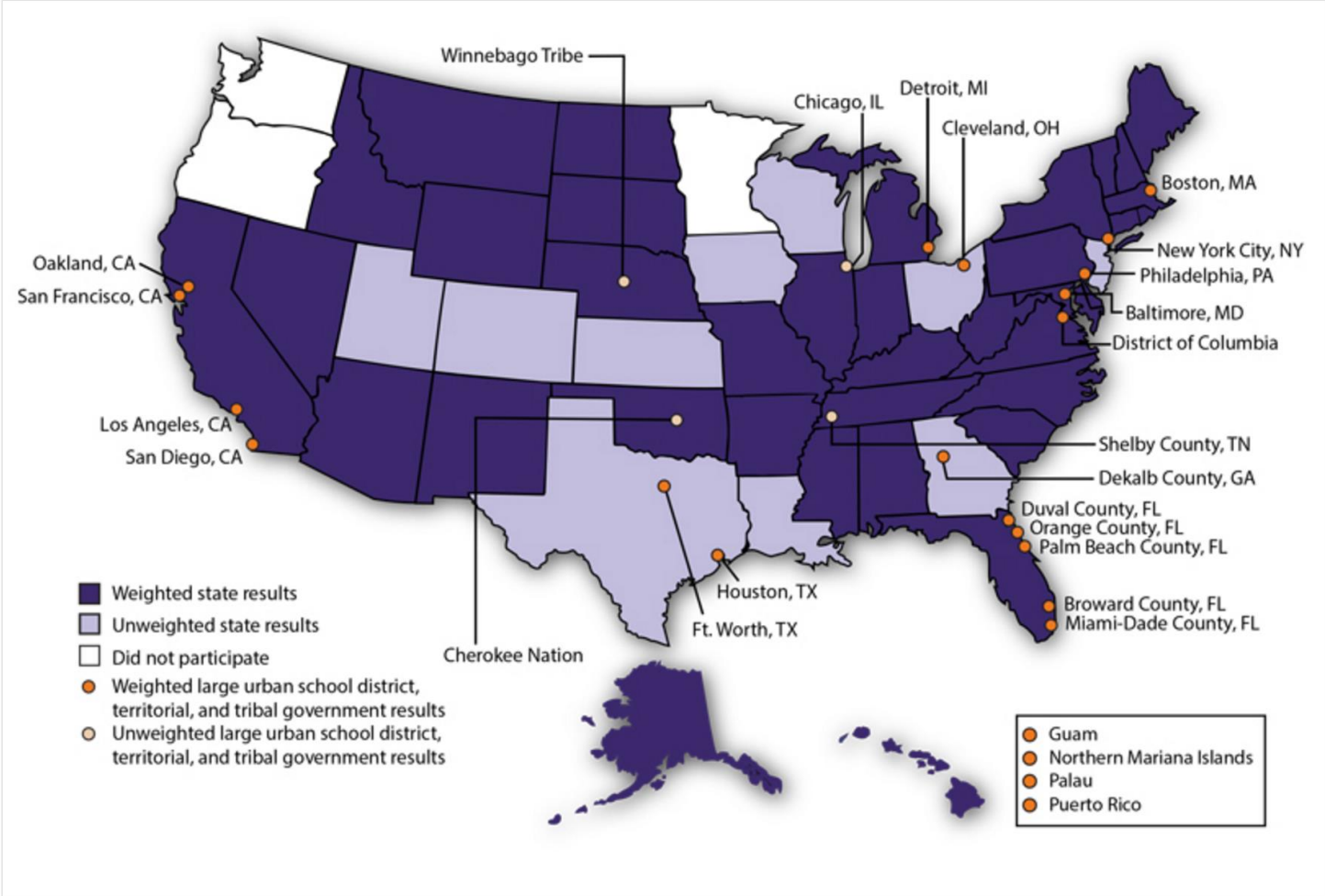
[WWW.CDC.GOV/HEALTHYYOUTH/DATA/YRBS](http://WWW.CDC.GOV/HEALTHYYOUTH/DATA/YRBS)

- Developed in 1990 to monitor priority health risk behaviors
- Administered in odd years, 1991 through 2015
- School-based, self administered survey
- Nationally, administered to middle and high school students
- Most states administer the YRBS to high school students
  - Fewer, to middle school students

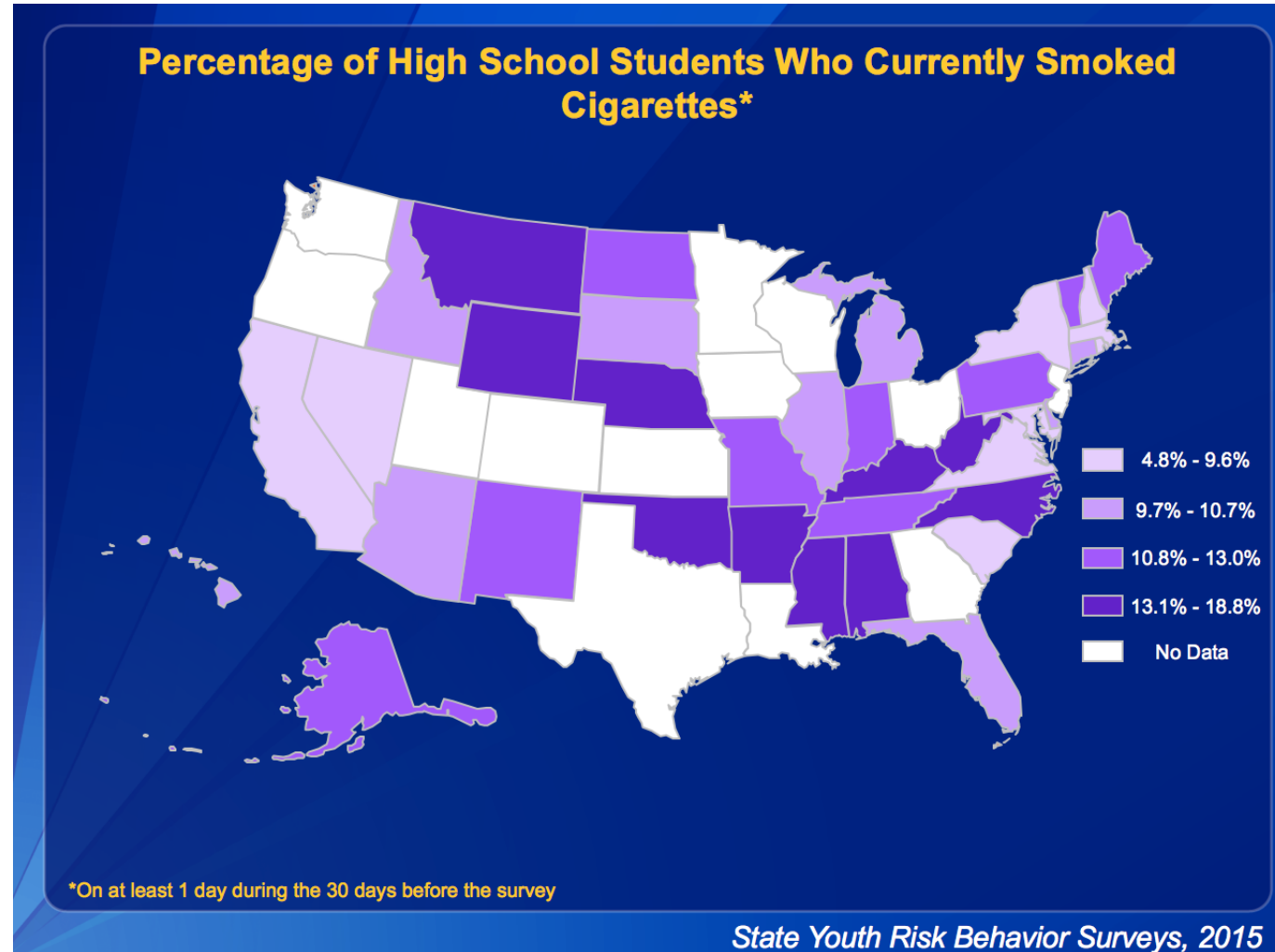


# YOUTH RISK BEHAVIOR SURVEY

2015 High School YRBS Participation Map



# YOUTH RISK BEHAVIOR SURVEY





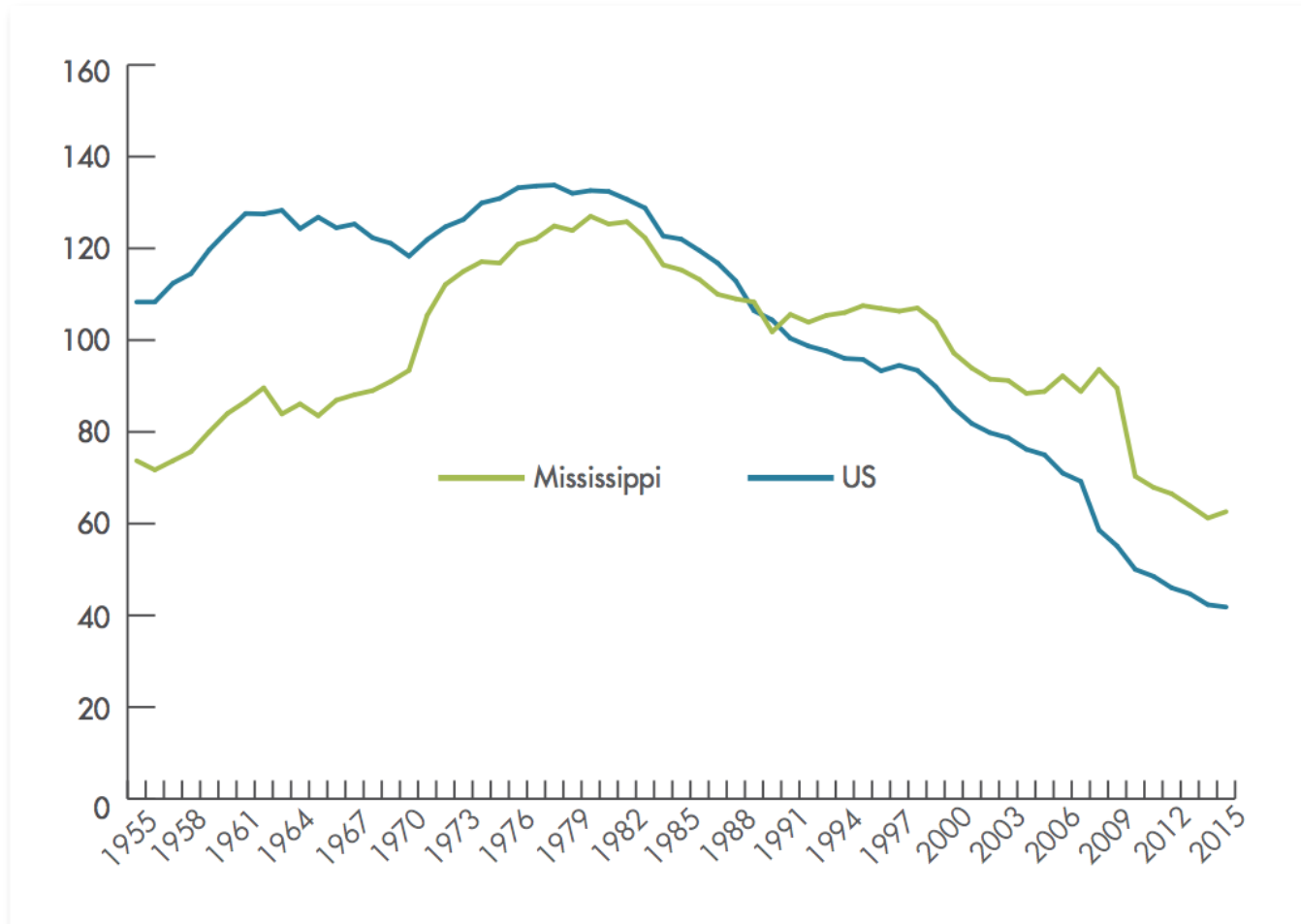
# ADMINISTRATIVE RECORDS



# PER CAPITA CONSUMPTION

*tax burden report : 2015*

# PER CAPITA CONSUMPTION

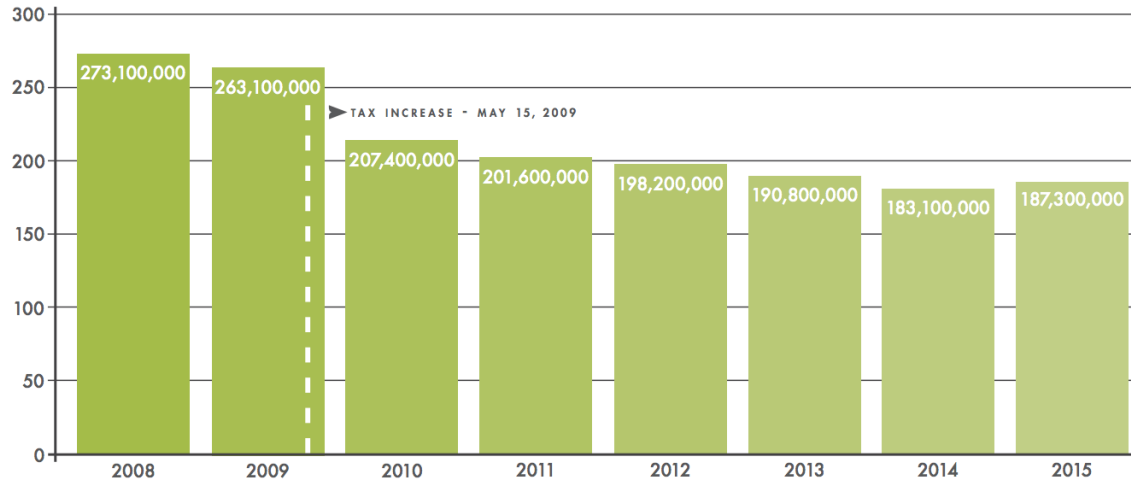


# The Mississippi (Tax) Experience

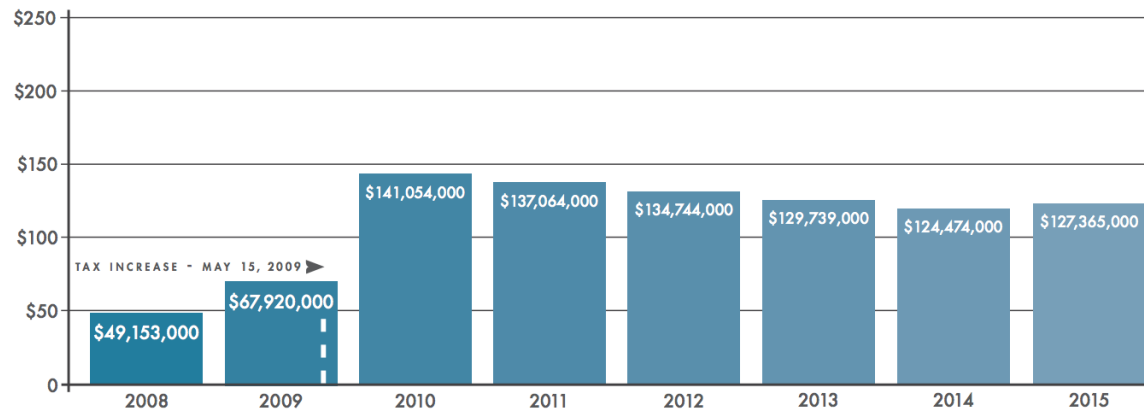
→ July 2016

- The Mississippi Legislature increased the state cigarette tax from 18 cents to 68 cents on May 15, 2009.
- The average state cigarette tax is currently \$1.63 and Mississippi's tax ranks 39th.

## Packs Sold | 2008-2015



## Revenues Collected | 2008-2015



# PER CAPITA CONSUMPTION & TAX REVENUE





# HOSPITAL ADMISSIONS

Smoke-free legislation reduces hospital admissions  
for childhood lower respiratory tract infection

So Lun Lee,<sup>1</sup> Wilfred Hing Sang Wong,<sup>1</sup> Yu Lung Lau<sup>1,2</sup>

Hospital Admissions for Childhood Asthma After  
Smoke-Free Legislation in England



# MEDICAID EXPENDITURES

## Medicaid Costs & Secondhand Smoke

	ATTRIBUTABLE POPULATION RISK	TOTAL COSTS	COSTS ATTRIBUTABLE TO EXPOSURE TO SECONDHAND SMOKE
POPULATION - BIRTH TO AGE 17			
LOW BIRTH WEIGHT CODES - ICD CODES THAT BEGIN WITH 765	18.0%	\$85,240,444	\$15,343,280
ACUTE LOWER RESPIRATORY ILLNESS (BIRTH TO AGE 5 ONLY) - ICD CODES THAT BEGIN WITH 480-488, 466	25.0%	\$28,551,853	\$7,137,963
OTITIS MEDIA AND MIDDLE EAR EFFUSION - ICD CODES THAT BEGIN WITH 382	14.0%	\$16,501,901	\$2,310,266
ASTHMA - ICD CODES THAT BEGIN WITH 493	35.0%	\$28,344,206	\$9,920,472
POPULATION - AGES 18+			
HEART ATTACKS AND OTHER HEART DISEASES - ICD CODES THAT BEGIN WITH 410	6.9%	\$12,149,244	\$838,298
LUNG CANCER - ICD CODES THAT BEGIN WITH 162	4.9%	\$12,204,636	\$598,027
		<b>\$182,992,283</b>	<b>\$36,148,306</b>


DATES OF SERVICE: 07/01/2012 - 06/30/2013

SPECIFIED DIAGNOSIS PRESENT IN EITHER THE PRINCIPLE  
DIAGNOSIS FIELD OR OTHER DIAGNOSIS CODES 1-4 POSITIONS

# GAMING REVENUE AND EMPLOYMENT DATA

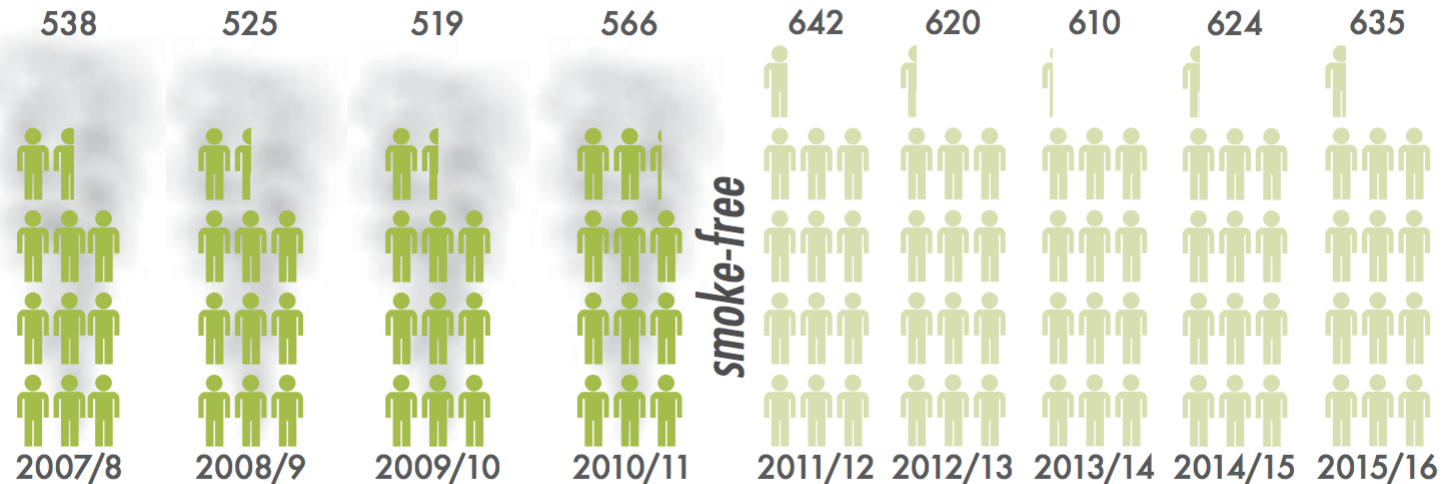
## NUMBER OF SLOTS AT THE PALACE CASINO




 = 100 Slots

Number of slots at the Palace Casino **increased by 18%** after going smoke-free.

## NUMBER OF EMPLOYEES AT THE PALACE CASINO



 = 50 Employees

Number of employees at the Palace Casino **increased by 17%** after going smoke-free.



# Map of Smokefree Indoor Air - Private Worksites, Restaurants, and Bars

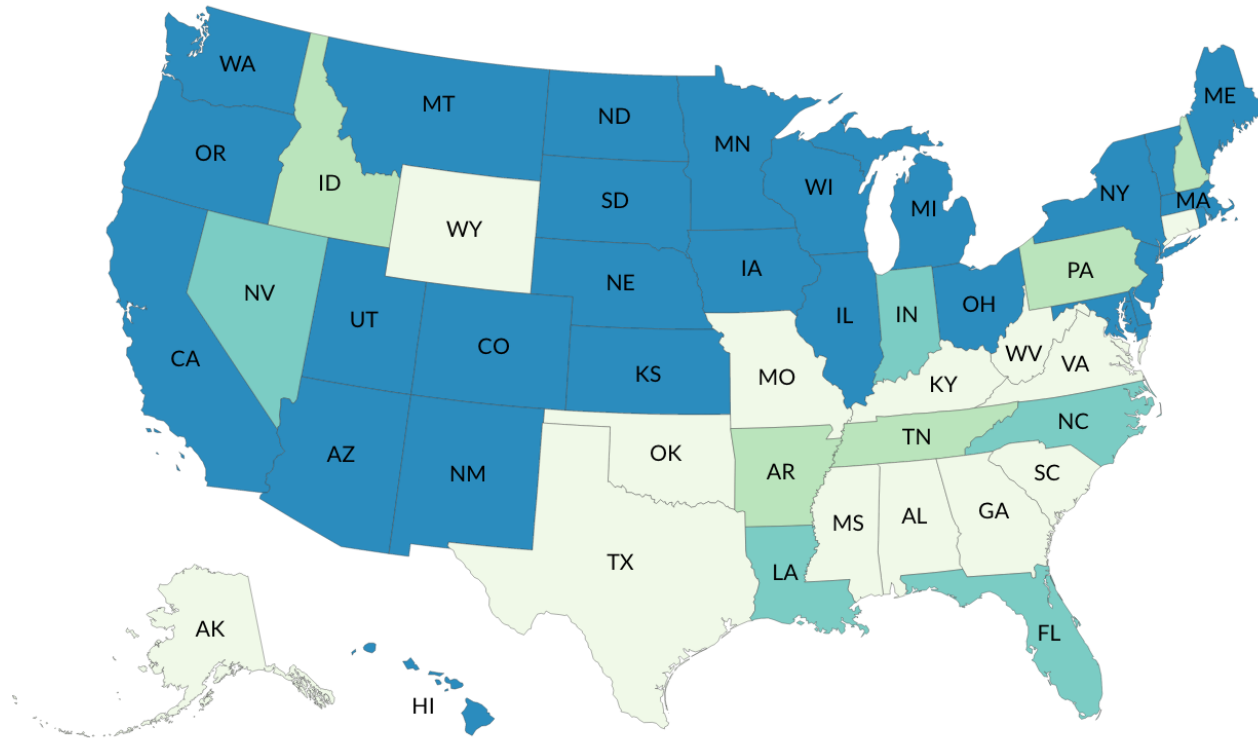


# SMOKE FREE LAWS

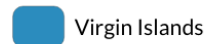
Smokefree Indoor Air - Private Worksites, Restaurants, and Bars (CDC STATE System Tobacco Legislation - Smokefree Indoor Air Summary) (In effect as of March 31, 2017)

## About This Map

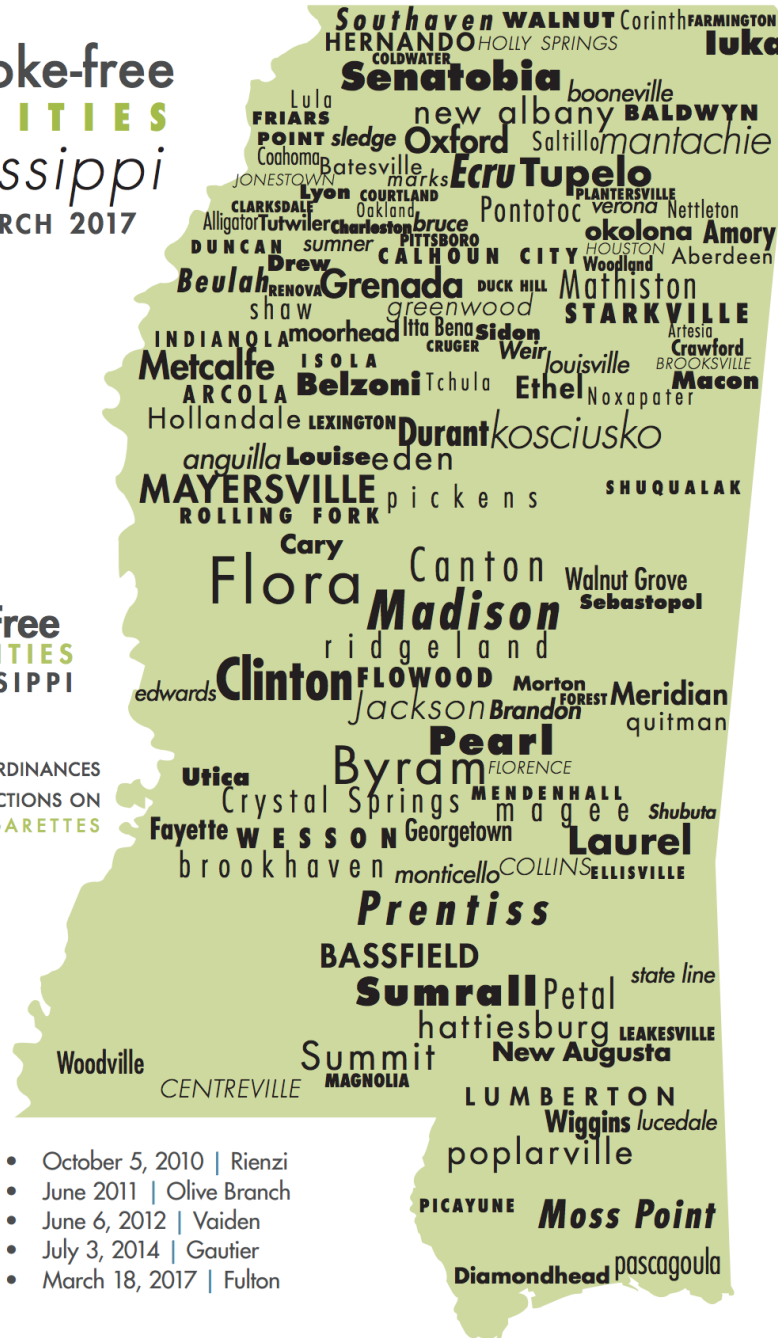
- No Law - designated areas - or separate ventilation law
- 100 % smokefree in one location
- 100 % smokefree in two locations
- 100 % smokefree in three locations



Territories



100% Smoke-free  
COMMUNITIES  
in Mississippi  
UPDATED | MARCH 2017



# SMOKE FREE POLICIES

There are

135

Smoke-Free  
COMMUNITIES  
IN MISSISSIPPI



\*93 OF WHICH HAVE ORDINANCES  
THAT INCLUDE RESTRICTIONS ON  
ELECTRONIC CIGARETTES

Partial Smoke-free  
COMMUNITIES  
in Mississippi

- August 6, 1996 | West
- October 2007 | Greenville
- November 15, 2007 | McComb
- May 1, 2008 | Gulfport
- July 31, 2008 | Walls
- January 6, 2010 | Columbus
- June 3, 2010 | Goodman
- October 5, 2010 | Rienzi
- June 2011 | Olive Branch
- June 6, 2012 | Vaiden
- July 3, 2014 | Gautier
- March 18, 2017 | Fulton



# U.S. Tobacco Control Laws Database: Research Applications

- ◆ Collection started in early 1980's
- ◆ Database created in 1985
- ◆ Database includes records back to 1914
  - the earliest smoking control ordinance is a 1936 Milwaukee, WI law prohibiting smoking on buses, and the earliest Youth Access ordinance is a 1914 Houston, MO law prohibiting sales to minors





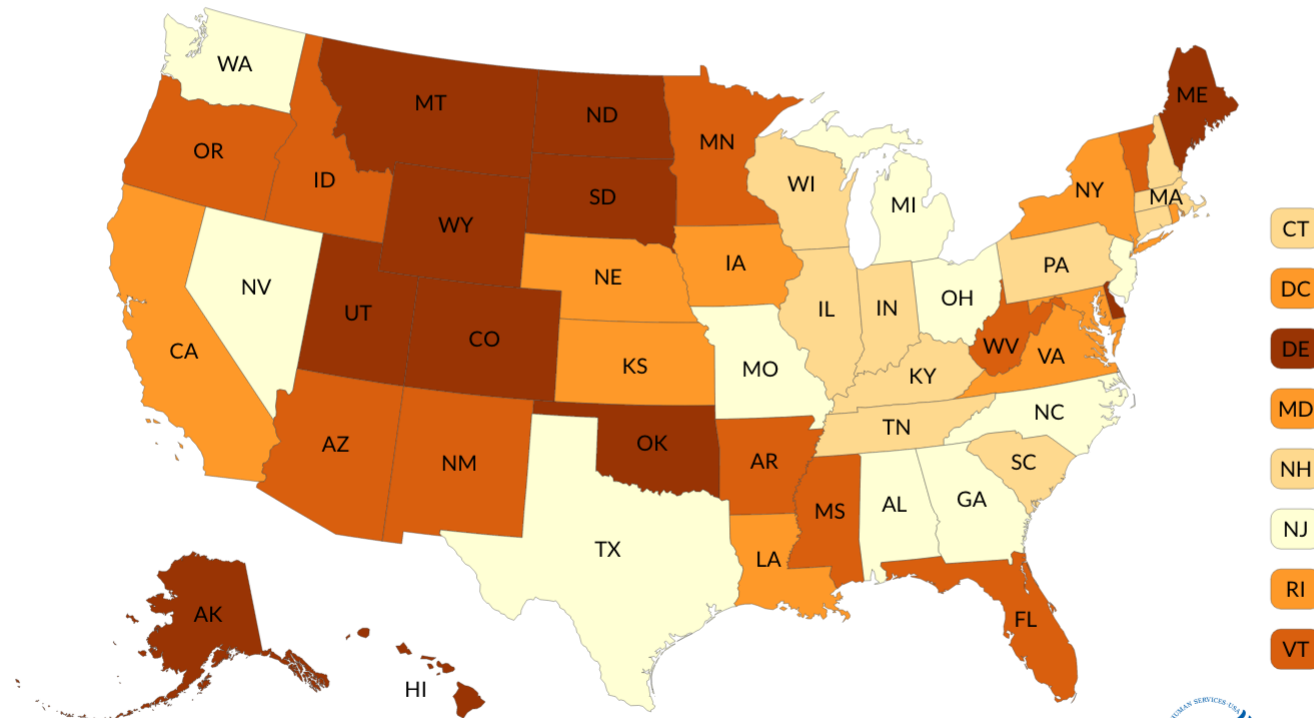
# STATE FUNDING FOR TOBACCO CONTROL

Map of Funding - Expenditures as a Percentage of 2007 CDC Recommended Level



Funding - Expenditures as a Percentage of 2007 CDC Recommended Level, 2014

About This Map



- 2.4% - 5.8%
- 6.3% - 10.1%
- 10.1% - 18.4%
- 19.2% - 40.7%
- 42.5% - 123.2%



# SOCIAL MEDIA





# SOCIAL MEDIA

## A cross-sectional examination of marketing of electronic cigarettes on Twitter

[Jidong Huang](#), [Rachel Kornfield](#), [Glen Szczypka](#), and [Sherry L Emery](#)

### Using Twitter Data to Gain Insights into E-cigarette Marketing and Locations of Use: An Inveillance Study

Monitoring Editor: Gunther Eysenbach

Reviewed by Gabbi Promoff, Yi Wang, and Sanmitra Bhattacharya

[Annice E Kim](#), PhD,<sup>1</sup> [Timothy Hopper](#), MS,<sup>2</sup> [Sean Simpson](#), MA,<sup>1</sup> [James Nonnemaker](#), PhD,<sup>1</sup> [Alicea J Lieberman](#), MPH,<sup>3</sup> [Heather Hansen](#), MPP,<sup>1</sup> [Jamie Guillory](#), PhD,<sup>1</sup> and [Lauren Porter](#), MPH, PhD<sup>4</sup>

### Vaporous Marketing: Uncovering Pervasive Electronic Cigarette Advertisements on Twitter

Eric M. Clark , Chris A. Jones, Jake Ryland Williams, Allison N. Kurti, Mitchell Craig Norotsky, Christopher M. Danforth, Peter Sheridan Dodds

Published: July 13, 2016 • <https://doi.org/10.1371/journal.pone.0157304>



ARE THERE ANY  
QUESTIONS? FEEL  
FREE TO ASK ANY-  
THING AT ALL.



Dilbert.com DilbertCartoonist@gmail.com

WHY DO  
GHOSTS  
HAVE  
CLOTHES?



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IF SOMEONE GIVES  
YOU A WEDGIE AT THE  
MOMENT YOU DIE, WILL  
YOU HAVE IT FOR  
ETERNITY?

